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CANALS AND RAILWAYS—DISCUSSION

W. M. ACWORTH: I wish to express my agreement in the main with Professor Dewsnap. Let me add that a comparison between Prussia and France shows that, under conditions certainly on the whole less favorable, the private railways of France operated at a ratio about 10 per cent lower than the state railways of Prussia. This seems to show greater efficiency and economy. In Texas the public got an equally good service at much lower rates than was given by fairly comparative state railways of Australia, in spite of the fact that in Australia capital would be raised cheaply on the credit of the county, while in Texas the state authorities had certainly not encouraged by their attitude the investment of private capital. Everything in England is making for railway nationalization as soon as political conditions will allow the government time to take up the subject. I believe the railway employees, the shareholders, and the mass of the voters are in favor. The professional and business classes are no doubt intellectually opposed, but they are out of sympathy with the present railway management, perhaps owing to what Professor Dewsnap called its "undiplomatic and unconciliatory attitude", and they will not be active in opposition; nor, even if they were, would they have the political weight necessary for success.

As to the papers on waterway policy I am not competent to discuss the administrative and executive points dealt with. I, however, regret that the more purely economic question, whether under any, and if so what, condition an artificial waterway can give as good and cheap a service to the public as a railroad, has not been raised. The advocates of a forward waterway policy are very chary of facing the crucial point of total cost (capital and maintenance cost charged on the public plus operating cost, which alone the freighter pays). The French official figures show that this total cost per ton kilometre is higher on the French waterways than on the French railways. Now, I believe that the railway could always undersell the canal, that in other words the railway is always the more economic transport machine from the public standpoint, though of course individual freighters by water might gain by throwing half of their real transportation costs on to the shoulders of the general taxpayer. Further, question the justice of taxing, for the benefit of the particular localities which alone could benefit by canals, parts of the country where physical

conditions make it impossible for them ever to get canals of their own.

Lastly, referring to Professor Dewsnap's statements that "traffic development is today conditioned even more by terminal than by line facilities, I should say that adequate terminal facilities are for a railroad expensive, but for a canal impossible. For instance in a great modern manufacturing plant, with its scores of miles of railway sidings through every yard and into every shop, it would be absolutely impossible to carry canals adapted for 1000 ton vessels through the yards and into the shops in a similar manner.

JOHN H. GRAY: Professor Dewsnap has given us an excellent paper. However it is not to its general excellence, its strong logic, and its systematic arrangement that I wish to call your special attention. The excellence of the paper, in the particulars named, should not cause us to overlook what seem to me serious defects in the premises on which the whole argument rests. The discussion reminds me of that very excellent book on Municipal Trade by Major Leonard Darwin. The logic in each case is impregnable, and the facts carefully selected, and beautifully marshalled.

Does Dr. Dewsnap accept the doctrine of the universality and beneficence of competition? If not, does he assume, what apparently is the only alternative, namely, effective regulation in private hands, or public ownership and management? If we are not to have public ownership, does his argument assume that we actually have effective control? Does he not, in fact, compare the defects of public ownership with an ideal condition of private ownership? Not less than five or six times in his paper he insinuates, without saying so directly, that the restrictions on private ownership in Germany and England are excessive. This is enough to commit him, all unconsciously it is true, to the theory of unregulated private monopoly, a doctrine no longer tenable. So when he comes to a criticism of the methods of accounting of public enterprises, his comparisons are always based on the assumption that the private enterprises have ideal systems of accounting. The facts do not seem to warrant such an assumption. It would doubtless be possible to match every instance of loose bookkeeping ascribed to public enterprises by an equally important and glaring defect in the accounting systems of private

enterprises. Furthermore, the fact should not be overlooked that the agitation for public ownership has been a chief means of bringing about such improvements as have been made in the accounting systems of private municipal monopolies. Again the argument that the state is so weak that new functions cannot safely be entrusted to it seems to me to rest on a false assumption; namely, that the state, with the increased complexity of our modern civilization, can perform effectively the functions which virtually all admit are properly state functions, unless the state itself be greatly strengthened. If political and economic history (with the rise and fall of nations) teaches any lesson clearly, it is this, that, no nation can long survive and maintain its sovereignty when any of its subjects, natural or artificial, are, in fact, more powerful than the sovereignty itself. But, Dr. Dewnsnup's assumption, that the state, in its present weak and emasculated form, can remain sovereign over a magnitude of great and federated monopolies, seems to me fallacious. It is plain to me that the state must be greatly strengthened to carry the burdens already and necessarily placed upon it. I admit his logic, and accept his facts, but cannot agree with his conclusions, because I doubt the soundness of virtually all of his more important premises.

H. G. MOULTON: I have been much interested in what Mr. Acworth has said in regard to the need of making a comparative study of the cost of transportation by water and by rail. Until we have demonstrated the economic advantages of waterways, discussion of methods to be adopted in their development is futile.

Some few attempts have been made in the United States to show the economies of water transportation, but in no case has a scientific comparison with costs by railway been made. I have seen statements to the effect that the cost of shipping over the enlarged Erie Canal will be only about one seventh the average cost of railroad shipments in this country. But such computations always leave out of consideration the state-levied taxes which are to support the canal. A donation of \$101,000,000 is to be made to the shippers by the state, and neither the interest on this amount nor the outlays for maintenance or operation of the canal need be covered by the rates charged on the canal. A comparison of such rates with those charged on self-supporting railways is manifestly unfair, yet strange as it may seem even some economists have been guilty of it.

It is my good fortune, however, to be able to present at this time some comparative statistics in line with the suggestion made by Mr. Acworth. As Professor Johnson has told us, Prussia and the city of Frankfort have together expended, or will have expended by the end of this year, upon the canalization of the Main River and the development of harbor facilities at Frankfort, approximately \$23,000,000. This amounts to about \$1,000,000 a mile for the twenty-three miles of river between the mouth of the Main and the city of Frankfort. The same amount of money at the average rate of railway construction in Prussia would build nine or ten railways between the same points. As a matter of fact all the traffic on the river could easily be handled by a single railway. Were the \$23,000,000 given to a railway, it could move this traffic for nothing and still pay handsome dividends.

Two German writers, Rathenau and Cauer of Berlin, have computed that a canal between the Rhine River and Berlin adequate for barges of 600 tons' capacity would cost twice as much as a double track freight railway, and that at the same time its capacity would be only half as great.

The well-known Dortmund-Ems Canal is heavily subsidized. In the year 1905 the deficit, which was paid out of the public treasury, amounted to about fifty-eight cents a ton for all the traffic that traveled on the canal. To this is to be added the actual freight charges made by the barge companies. When thus computed the total cost of transport on this famous waterway is found to be over twice that for similar kinds of freight on German railways.

The deficit on all the waterways of Germany, including the great rivers the Rhine and the Elbe, amounts to over \$3000 per mile annually. At the same time the annual profit on the Prussian railways amounts to more than \$7000 per mile. Under such conditions quotations of rates are obviously not to be accepted as proof of the greater economies of water transportation.

It may be asked, in the light of the foregoing facts, why it is that Germany should persist in the policy of developing her waterways. In preparation for the International Railway Congress held in Berne, Switzerland, in July, 1910, a series of questions was sent out to the railway representatives of the various countries. In reply to the question whether it were possible to develop the railways commensurately with the needs of expanding

commerce, all answered affirmatively except the Prussian representatives, who stated that they regretted that they must refuse to answer that particular question. Upon being asked at the conference whether it were true, as had been officially stated in Germany, that the railways of Westphalia had reached the very limit of development, they replied guardedly that their opinion on the point had never been sought by the German government. What is back of the situation? I have been informed by the eminent French authority on transportation, M. Colson, that Kaiser William is directly responsible for the German waterway policy. Believing that the future of the Fatherland is dependent upon the development of Germany's sea power, the Kaiser also believes that inland water transportation is somehow or other indispensable to the development of extensive ocean commerce. That there is no necessary connection between the two matters not to a king who receives his inspiration from on high. Now, in 1899 when the canal bills were under consideration, the Emperor dismissed twenty officials of high standing because they voted against the waterway program. Twenty other men, favorable to water transportation, were appointed in their places, and the bills subsequently became law.

In France the deficit on the waterways in 1905 amounted to about 60 cents a ton for all the freight handled. When it is considered that practically all of such traffic is low class freight, and that it is in large part local, the enormous cost is at once evident.

The importance of adequate terminal and transshipping facilities has been rightly emphasized by both Professor Johnson and Major Harts. The latter has spoken, also, of the great cost involved in the transshipping of goods in comparison with the cost of haulage. I would raise the question here whether the cost of transshipping may not in fact be so heavy as to be in most cases altogether prohibitive. France has expended millions of dollars upon the development of transshipping facilities, and belt lines of railways have been constructed at the important waterway terminals. Yet transshipments of goods in France are very rare, about 99 per cent of the waterway traffic of the country being strictly riparian. In Germany a large amount of freight is indeed transshipped, but it is accomplished only by artificial means. The rates for transshipments are fixed by the government considerably below the actual cost of the service, and the loss is

made up out of general taxation. In the absence of such a practice German water traffic, too, would be mainly riparian.

There is one other consideration which I should like briefly to touch upon. In Europe the waterways have been developed and fostered for many years, and as a result industries have been built up with reference to water transportation facilities. Under such conditions the giving up of water transportation, and the consequent readjustments of industrial conditions would involve heavy losses. This consideration is of no little importance in determining the policy of continuing the development of European waterways. But in the United States conditions are completely reversed. Our industrial development in recent years has taken place with scarcely any regard to water transportation. Our industries have almost wholly been built up around the railways, and the readjustments that would be necessary in order to make use of waterways would involve enormous losses. Consider for a moment what it would probably cost to reconstruct the railway terminal system of Chicago in a way that would place it in harmonious relationship with a Lakes-to-Gulf deep waterway.

Until it can be shown that water transportation is, all things considered, cheaper than that by rail; until it can be shown that the cost of transshipment would not be prohibitive; until it can be shown that the losses incident to the necessary readjustments in industry would be more than compensated by eventual savings, the economic advisability of waterway development cannot be regarded as having been demonstrated. It is, moreover, useless to spend our time in discussing how waterways should be financed and the role that should be played by the federal, state, and local governments respectively until we have decided the prior question of feasibility.

EMORY R. JOHNSON: The importance of studying the ton-mile costs of transportation upon canals was emphasized by Mr. Acworth, who regretted that my paper did not deal with that question. In reply I wish to state that I recognize the importance of ascertaining the cost of transportation by a proposed waterway and of ascertaining that cost, as closely as may be, in advance of the construction of a waterway. The State of New York made such an investigation before embarking upon the work of enlarging the Erie Canal. Just at present, I happen to be chairman of a committee created by the commercial interests of Philadelphia,

Wilmington, and Trenton, to investigate the traffic aspects of a proposed canal connecting the Delaware River and New York Bay. Thus it was not because of lack of interest on my part in the question of the cost of transportation by waterways that caused me to consider only administrative and fiscal problems, but because it seemed to me more important that the latter problems should be discussed at the present time. A traffic study should precede the authorization of any particular work.